

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/21061

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B28C 5/08  
 US CL : 366/54, 59;

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 366/54, 56, 57, 59; 524/507, 123, 474

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 EAST

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 polycecene, pfc, polytetrafluoroethylene, olefin, polyurethane, drum, coating, plastic, resin, lubricating

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 01/26871 A1 (KHOURI et al) 19 December 2001, see entire document.	1-58
Y	US 5,432,211 A (MORITA et al) 11 July 1995, see entire document.	1-58
Y	US 4,937,010 A (MAILLAT) 26 June 1990, see entire document.	1-58
Y	US 5,399,192 A (YAMASOE) 21 March 1995, see entire document.	1-58
A	WO 03/101694 A1 (KHOURI et al) 11 December 2003, see entire document	1-58

 Further documents are listed in the continuation of Box C.

See patent family annex.

- \* Special categories of cited documents:
- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier application or patent published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*Y\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

\*&\* document member of the same patent family

Date of the actual completion of the international search

18 November 2004 (18.11.2004)

Date of mailing of the international search report

29 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
 Commissioner for Patents  
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Authorized officer

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## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:  
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RECD 01 DEC 2004

PCT PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year)		29 NOV 2004
FOR FURTHER ACTION See paragraph 2 below		
61300-615PCT		
International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/US04/21061	29 June 2004 (29.06.2004)	04 March 2004 (04.03.2004)
International Patent Classification (IPC) or both national classification and IPC		
IPC(7): B28C 5/08 and US Cl.: 366/54, 59		
Applicant		
MC NEILUS TRUCK AND MANUFACTURING, INC.		

## 1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Tony G. Soohoo Jean Proctor Paralegal Specialist Telephone No. 571-272-1700
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Form PCT/ISA/237 (cover sheet) (January 2004)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US04/21061

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
 This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
 a sequence listing  
 table(s) related to the sequence listing
  - b. format of material  
 in written format  
 in computer readable form
  - c. time of filing/furnishing  
 contained in international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

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PCT/US04/21061

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-58	YES
	Claims NONE	NO
Inventive step (IS)	Claims NONE	YES
	Claims 1-58	NO
Industrial applicability (IA)	Claims 1-58	YES
	Claims NONE	NO

2. Citations and explanations:

Claims 1-58 LACK an inventive step under PCT Article 33(3) as being obvious over WO 01/26871 (WO '781 to KHURI et al) in view of US 5,432,211 to MORITA et al 5,432,211 (US '211) and US 5,399,192 to YAMASOE (US '192) and US 4,927,010 to MAILLAT (US '010).

The WIPO document (WO '781) discloses a cement mixer drum with a helical agitator, and an inner surface of urethane material.

The WO '781 discloses all of the recited subject matter as defined within the scope of the claims with the exception of the inner urethane surface having a slip agent material, in particular PTFE, or olefin such as polydecene or polyalpha olefin fluid.

The US '211 reference teaches that a wear resistant, and corrosion resistant resin coating, column 2, lines 60-66, maybe prepared with a base of urethane resin and PTFE, (fluorine-containing compounds) for lubricity and water resistance, column 5, line 13-15, and 56-60, and column 6, line 5 - 24.

The US '192 reference teaches that a water resistant coating may be prepared with a base resin of urethane, column 4, line 14 with small amounts of polyolefin resins, column 4, line 16-17.

The US '010 reference teaches that a lubrication coating may be formed from a base urethane, column 6, lines 16-21, and an additive of solid lubricant, such as PTFE, or a liquid lubricant, column 3, lines 60-66, through column 4, lines 6.

In view of the teaching as a whole of the US '211, US '192, and US '010 references that one may provide a urethane base with additive material such as PTFE or olefin so as to provide a characteristics of wear resistance, water resistance, or lubrication, and whereby such additives may be in the form of solids or liquids (as discussed by US '010), it is deemed that it would have been obvious to one of ordinary skill in the art to modify the urethane base of the WO '781 reference with the addition of lubricant additives such as fluorine containing compounds or olefin compounds so that the inner surface of the drum would wear better and resist rusting.

Claims 1-58 MEET the criteria set out in PCT Article 33(4), and thus has industrial applicability because the subject matter claimed can be made or used in industry.